

EEE 447 MICROPROCESSOR LABORATORY

EXPERIMENTAL WORK 3

PIC I/O PORT PROGRAMMING

Objective: In this experiment, I/O Port programming of PIC18F452 is represented. Setting the ports of PIC18F452 as input and output is emphasized.

Ex.1: Write the following Assembly Language Program, compile and download the resulted “HEX” file to PIC18F452. Observe the leds connected to PORTC.

<pre>list p=18f452 #include p18f452.inc R1 EQU 0X07 R2 EQU 0X08 R3 EQU 0x09 ORG 0X00; Starting point MOVLW 0 MOVWF TRISC; PORTC is output L1 MOVLW 0X55 MOVWF PORTC; PORTC =0x55 CALL DELAY MOVLW 0xAA MOVWF PORTC; PORTC=0xAA CALL DELAY BRA L1</pre>	<pre>; Delay Routine ORG 300H DELAY MOVLW D'10' MOVWF R3 D3 MOVLW D'255' MOVWF R1 D1 MOVLW D'255' MOVWF R2 D2 NOP NOP DECF R2,F BNZ D2 DECF R1,F BNZ D1 DECF R3,F BNZ D3 RETURN END</pre>
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Ex.2: Write the following Assembly Language Program, compile and download the resulted “HEX” file to PIC18F452. Observe the PORTC pins.

<pre>LIST P=18f452 INCLUDE "P18f452.INC" R1 EQU 0X07 R2 EQU 0X08 R3 EQU 0x09 ORG 0 ; Starting point CLRF TRISC ;PORTC is output L1 MOVLW 0x00 MOVWF PORTC CALL DELAY BSF PORTC,0 CALL DELAY BSF PORTC,1 CALL DELAY BSF PORTC,2 CALL DELAY BSF PORTC,3 CALL DELAY BSF PORTC,4 CALL DELAY</pre>	<pre>BSF PORTC,5 CALL DELAY BSF PORTC,6 CALL DELAY BSF PORTC,7 CALL DELAY GOTO L1 ;----- Delay Routine----- ORG 200H DELAY MOVLW D'20' MOVWF R3 D3 MOVLW D'255' MOVWF R1 D1 MOVLW D'255' MOVWF R2 D2 NOP NOP DECF R2,F BNZ D2 DECF R1,F BNZ D1 DECF R3,F BNZ D3 RETURN END</pre>
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Ex.3: Write a program to perform the following:

- a) Keep monitoring the RD3 bit until it becomes HIGH;
- b) When RD3 becomes HIGH, do the same operation in experiment 2.

<pre>LIST P=18f452 INCLUDE "P18f452.INC" R1 EQU 0X07 R2 EQU 0X08 R3 EQU 0x09 ORG 0 CLRF TRISC BSF TRISD,3; RD3 is input REPEAT clrf PORTC BCF PORTD,3 HERE BTFSS PORTD,3 BRA HERE L1 BSF PORTC,0 CALL DELAY BSF PORTC,1 CALL DELAY BSF PORTC,2 CALL DELAY BSF PORTC,3 CALL DELAY BSF PORTC,4 CALL DELAY BSF PORTC,5 CALL DELAY BSF PORTC,6 CALL DELAY BSF PORTC,7 CALL DELAY GOTO REPEAT</pre>	<pre>; Delay Routine ORG 200 DELAY MOVLW D'15' MOVWF R3 D3 MOVLW D'255' MOVWF R1 D1 MOVLW D'255' MOVWF R2 D2 NOP NOP DECF R2,F BNZ D2 DECF R1,F BNZ D1 DECF R3,F BNZ D3 RETURN end</pre>
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